Operating Plan

The proposed MWRRS operating plan optimizes the relationship among service levels, estimated ridership, and revenue generated. It consists of a hub-and-spoke operation with Chicago's Union Station serving as the system hub. The operating plan dramatically improves service reliability, increases service frequency, and reduces travel times compared to current regional passenger rail services. Depending upon the corridor, round trip frequencies increase between two and five times those offered by existing services. Reductions in travel times range from 30 percent between Chicago and Milwaukee to 50 percent between Chicago and Cincinnati. MWRRS travel times are competitive with auto and provide all-weather service with increased reliability in congested urban corridors. Additionally, the MWRRS service will increase through and connecting trips at Chicago Union Station.

The operating plan results in higher operating efficiencies compared with existing Midwest service by using trains capable of quick turnaround at service endpoints and run-through service in Chicago. Maintenance and service facilities will be strategically located to optimize operating schedules, eliminate maintenance-related service interruptions, and achieve cost efficiencies.

This update reflects a number of refinements to corridor routes, travel times and operating speeds designed to minimize capital costs while maximizing ridership and revenues.

"The operating plan dramatically improves:

- *Service reliability within the region*
- *Frequency of train service*
- *Train travel times compared to auto and existing passenger rail service"*

EXAMPLE TRAIN TRAVEL TIMES (EXPRESS)

City Pairs	MWRRS	Current Service	Time Reduction
Chicago–Detroit	3 hr 46 min	5 hr 36 min	1 hr 50 min
Chicago–Cleveland	4 hr 22 min	6 hr 24 min	2 hr 02 min
Chicago–Cincinnati	4 hr 08 min	8 hr 10 min	4 hr 02 min
Chicago–Carbondale	4 hr 22 min	5 hr 30 min	1 hr 08 min
Chicago–St. Louis	3 hr 49 min	5 hr 20 min	1 hr 31 min
St. Louis–Kansas City	4 hr 14 min	5 hr 40 min	1 hr 26 min
Chicago–Omaha	7 hr 02 min	8 hr 37 min	1 hr 35 min
Chicago–St. Paul	5 hr 31 min	8 hr 05 min	2 hr 34 min
Chicago–Milwaukee	1 hr 05 min	1 hr 29 min	0 hr 24 min

Financial Performance

A goal of the MWRRS is to improve passenger rail service with public investments in infrastructure and equipment to the point that the need for public operating subsidies are minimized, if not entirely eliminated. All MWRRS corridors are projected to generate sufficient operating revenues to cover operating costs by the year 2025 after the system matures, assuming that the entire system is fully operational and that the MWRRS operating and financial forecasts are achieved.

During the construction and start-up phases, system revenues will not be sufficient to cover all system operating costs. As a result, during this ramp-up period, operating subsidies will be required to support the proposed level of service. A Transportation Infrastructure Finance and Innovation Act (TIFIA) loan—a USDOT federal credit program that provides credit assistance for surface transportation projects of national and regional significance—is the suggested mechanism that should be used to cover operating losses during the initial start-up years. The 35-year payback permitted by this federal program enables the loan to be retired using future system revenues.

Retail space rental and commercial advertising within larger passenger stations, as well as same day express parcel delivery service, have the potential to generate additional revenue not included in the MWRRS financial forecast. These revenue-producing sources will further strengthen the MWRRS' financial viability.

"A goal of the MWRRS is to improve passenger rail service with public investments in infrastructure and equipment to the point that the need for public operating subsidies are minimized, if not entirely eliminated."

"During the construction and start-up phases, system revenues will not be sufficient to cover all system operating costs and subsidies will be required."

"All MWRRS corridors are projected to generate sufficient operating revenues to cover operating costs by the year 2025 after the system matures, assuming that the entire system is fully operational...."

Forecast Operating Costs

As planned, the MWRRS will be a cost-effective system to operate, and its financial performance is expected to improve as the system matures. The regional connectivity of the MWRRS in general, and the efficiencies of its operating plan in particular, are the foremost reasons why the system is expected to be cost-effective. Reduced travel times result in operating more train miles per hour of service. Since the largest component of annual operating costs is attributable to labor, when labor is used more productively, operating costs decline on a train-mile basis.

The use of advanced train technology reduces per mile operating costs and maintenance costs. Although system operating costs incorporate current Amtrak labor work rules and labor rates, service-related productivity improvements, such as lower equipment maintenance costs, faster equipment turnarounds, and better crew utilization serve to contain operating costs. In this update, operating cost estimates were carefully reviewed and updated to reflect the latest industry experience. Particular emphasis was given to refining train equipment maintenance and track maintenance costs—two major operating cost items.

"The MWRRS operating plan and train speeds are integral to the system's overall cost effectiveness, as well as the system's reliability and regional connectivity."

OPERATING REVENUES, COSTS AND OPERATING RATIO

MWRRS Summary Financial Statistics	Operating Revenue (Millions of 2002 $)		Operating and Maintenance Cost (Millions of 2002 $)		Operating Ratio*	
	2014	2025	2014	2025	2014	2025
Chicago–Detroit/Grand Rapids/Port Huron	$113	$129	$95	$97	1.18	1.32
Chicago–Cleveland	$50	$66	$56	$58	0.88	1.15
Chicago–Cincinnati	$53	$61	$40	$41	1.32	1.49
Chicago–Carbondale	$22	$25	$22	$22	0.99	1.11
Chicago–St. Louis	$61	$71	$47	$49	1.30	1.46
St. Louis–Kansas City	$35	$47	$34	$35	1.05	1.32
Chicago–Quincy/Omaha	$53	$61	$59	$60	0.90	1.02
Chicago–Milwaukee–St. Paul/Green Bay	$141	$172	$99	$104	1.42	1.65
Midwest Regional Rail System Total	**$528**	**$632**	**$453**	**$466**	**1.17**	**1.36**

*Operating revenue divided by operating and maintenance costs

Capital Costs

MWRRS capital costs include two major components—infrastructure and train equipment. The total capital investment in these two areas required for the MWRRS is estimated to be $7.7 billion (in 2002 dollars).

Train Equipment

Advanced passenger train technology enhances the utility and attractiveness of the proposed MWRRS. Travel time reductions, increases in train frequency, improved service and reliability, and modern equipment attract the attention of travelers, increase the competitiveness of rail travel with other means of transportation, and establish the MWRRS as a new mode choice for business and non-business travelers.

The MWRRS-selected train technology will:

- Permit travel at speeds up to 110 mph
- Significantly reduce train travel times
- Provide safe, reliable, comfortable, and convenient service
- Offer on-board amenities for business and leisure travelers such as comfortable seating, food service and 110 volt plug-ins for cell phones and computers
- Offer operations and maintenance cost savings

Fleet Composition

The proposed operating plan requires 63 trainsets, including spares. Train equipment for the entire system will cost approximately $1.1 billion. This cost estimate reflects a volume discount achieved by procuring the equipment on a system—rather than a corridor—basis and by manufacturing the train equipment in the Midwest. The updated equipment cost estimates were obtained from established multi-national manufacturers as part of an on-going MWRRI equipment evaluation effort. These estimates benefited from the experience gained in the development of a MWRRI equipment specification by the Midwest states and Amtrak.

Infrastructure Improvements

Track Improvements

Based on a comprehensive engineering review and refinement process, the infrastructure improvements required to implement the MWRRS are estimated to cost $6.6 billion. Major capital improvements include track replacement and upgrades, additional sidings, signal and communications systems, and highway-railroad grade-crossing improvements as necessary to support intercity passenger speeds of up to 110 mph as well as concurrent freight and commuter rail operations.

The infrastructure capital cost estimates in this 2004 plan update are substantially more than those cited in the prior year 2000 report. The increased infrastructure cost estimates are based on a better understanding of infrastructure improvements required to accommodate freight rail capacity needs, the inclusion of updated equipment maintenance facility cost estimates and the results of recent planning conducted by the MWRRI states.

Cost estimates and other results from more detailed planning and preliminary engineering studies addressing key MWRRS corridor segments have been incorporated. These studies include: the Milwaukee–Madison Corridor Study, the Milwaukee–Green Bay Corridor Study, the South of the Lake Passenger Rail Study addressing improvement needs in Illinois, Indiana and Michigan, a Chicago–Cleveland Route Alternative Study sponsored by Ohio and Indiana and the Chicago Region Environmental and Transportation Efficiency Program (CREATE). The CREATE program addresses freight rail congestion mitigation issues in the Chicago Metropolitan Area and is supported by Illinois DOT, Chicago DOT and the Association of American Railroads

MWRRS Capital Investment by Corridor

The 3,000-mile rail network to be used by the MWRRS is largely in good condition. Freight railroads own the majority of the system. Amtrak and Chicago's commuter rail operator, Metra, own the remainder. Amtrak uses some of the lines for its various passenger services. The rail infrastructure must be improved and enhanced to integrate the proposed MWRRS onto the existing rail network and simultaneously preserve the integrity of current and future freight and commuter operations.

MWRRI CAPITAL INVESTMENT BY CORRIDOR (MILLIONS 2002 $)

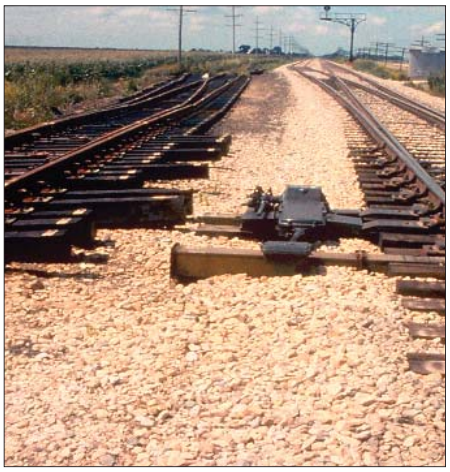
Corridor	Infrastructure	Train Equipment	Total
Chicago–Detroit/Grand Rapids/Port Huron	$873	$234	$1,106
Chicago–Cleveland	$1,187	$152	$1,338
Chicago–Cincinnati	$606	$101	$707
Chicago–Carbondale	$232	$51	$283
Chicago–St. Louis	$445	$115	$560
St. Louis–Kansas City	$893*	$86	$980
Chicago–Quincy/Omaha	$638	$167	$806
Chicago–Milwaukee–St. Paul/Green Bay	$1,638	$222	$1,860
Chicago Terminal and Waterford Shop	$60	-	$60
TOTAL	**$6,572**	**$1,128**	**$7,700**

*Estimate subject to additional analysis and refinement.

Benefits Associated with Infrastructure Improvements

Numerous benefits will be derived from MWRRS-related infrastructure improvements, including:

- Operation of passenger trains at speeds up to 110 mph
- Reliable, frequent, and convenient passenger train arrivals and departures as a result of increased track capacity and signal system improvements
- System operation consistent with freight railroad policy and FRA safety regulations
- Modern and spacious station facilities and amenities for passengers
- Safety improvements to highway-railroad grade crossings
- Operational, safety and capacity benefits to freight railroads from improved track and signals



"The MWRRS is estimated to generate an additional $2.6 billion in public/private sector investments to improve and increase amenities in stations and promote sound development and job growth in adjacent areas."

Train Control Systems

A state-of-the-art train control system is proposed both as a collision avoidance and train traffic management tool. This system will be designed to improve operating safety, track capacity, and coordination among intercity passenger, freight and commuter rail operations.

Highway-Railroad Grade Crossings

Improvements to highway-railroad grade crossings, through a combination of technology improvements, visibility improvements, fencing, and some closures are part of the MWRRS infrastructure improvement program. Improvements are designed to enhance train, motor vehicle, and pedestrian safety. The highway-railroad grade crossing improvements proposed in this plan were developed in accordance with FRA guidelines.

Passenger Stations

Passenger station costs include the construction of new facilities where none now exist, as well as the refurbishment of existing stations. Improvements will be made to Chicago's Union Station, the hub station for the system, as well as regional and local stations. Planned improvements are intended to enhance the aesthetics of MWRRS stations, their functionality, and their ability to support potential station-related, income-producing improvements. The $7.7 billion public investment in the MWRRS is estimated to generate an additional $2.6 billion in public/private sector investment to improve and increase amenities in stations and promote sound development patterns and job growth in adjacent areas.

Financing the Required Capital Investment

The MWRRS capital improvement program is estimated to cost $7.7 billion (in 2002 dollars) phased over a 10-year implementation period. The funding plan consists of a mix of funding sources including federal grants and loans, state funds, and other revenue generated from system-related activities, such as joint development proceeds.

While the capital investment required is substantial, the goal of obtaining sufficient capital funding is achievable. A coordinated and active effort involving each state, private sector representatives, and local elected officials will be required to ensure the system's implementation.

"A $7.7 billion capital investment is required to implement the MWRRS. Funding this level of investment requires:

- *Federal funds*
- *State funds*
- *Private sector funds"*

Federal funding will be the primary source of capital funds. A major, multi-year funding program will be necessary to guarantee that federal funds are available to the project consistent with the implementation schedule. The MWRRS Plan is based on the establishment of an 80/20 federal/state funding program like those that already exist for highways, transit and airports. Some of the Midwest states are currently using federal funds to implement MWRRS components such as highway-railroad grade crossing safety improvements. The strategic financial plan also assumes that Federal Full Funding Agreements, Grant Anticipation Notes and Transportation Infrastructure Finance and Innovation Act (TIFIA) loans can be used to ensure a steady flow of federal funds in order to maintain the implementation schedule.

KEY ASSUMPTIONS UNDERLYING THE STRATEGIC FINANCIAL PLAN

- *A dedicated, multi-year federal capital funding program for infrastructure and equipment will be required.*
- *The MWRRS Plan is based on the establishment of an 80/20 federal/state funding program like those that already exist for highways, transit and airports.*
- *States will match federal funding for infrastructure improvements and operating equipment.*
- *Where feasible, private sector financing to augment public-sector investments will be obtained.*

Proposed Implementation Schedule

The proposed implementation schedule reflects a 10-year phasing of MWRRS corridor segments. This 10-year phasing program is based on a conceptual analysis of the system's operations, engineering, and environmental requirements and issues.

The following principles were used to assemble the proposed implementation plan:

- Service is to be implemented consistent with market demand and each state's financial capacity to implement each phase
- Corridor segments with the highest potential ridership per dollar invested are to be implemented first
- Broad geographic coverage is to be achieved as early as possible
- Branch lines, which are expected to generate less revenue, are to be introduced in the later implementation phases when most of the corridors generate revenues in excess of operating costs

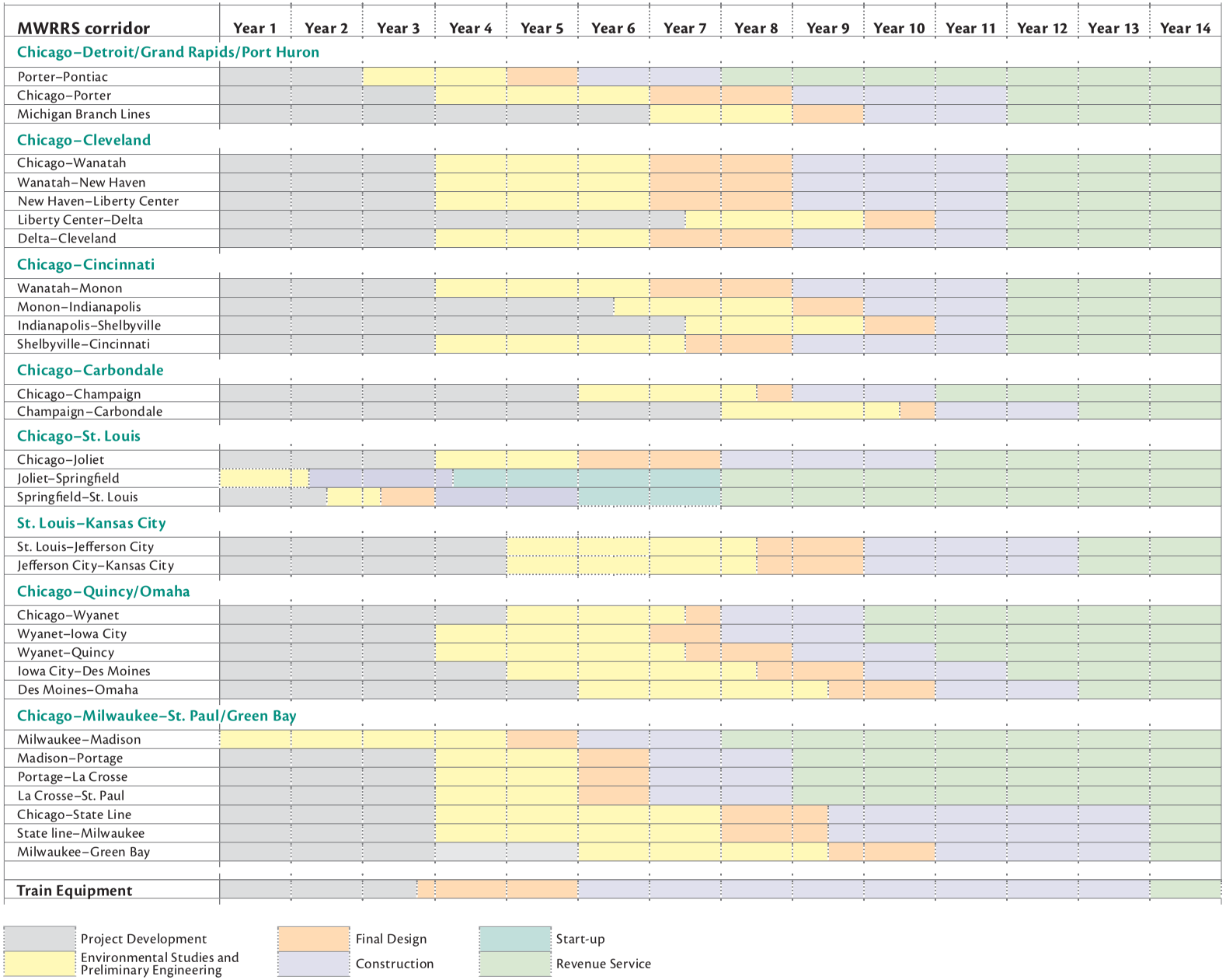
Additionally, ridership and revenue forecasts generated for the MWRRS were analyzed to identify the strongest performing corridors and to identify synergies between corridors in terms of rider travel patterns, level of ridership, operations, and network connectivity. The implementation and capital upgrade plan for the MWRRS was based on input from freight and commuter rail operators. Additional environmental analysis, preliminary engineering and final design work will also have to be completed. This MWRRS plan represents an important first step in an increasingly more detailed and project-specific planning and negotiation process, which must be conducted jointly with freight and commuter railroads.

"The MWRRS implementation plan reflects an incremental approach to capital improvements and service introductions. The proposed phasing ensures:

- *Strong system start-up in terms of ridership and revenue*
- *Increasing ridership and revenue as the system becomes operational."*

"The implementation and capital upgrade program was based on input from freight railroads and commuter operators. This MWRRS plan represents an important first step in an increasingly more detailed and project-specific planning and negotiation process, which must be conducted jointly with freight railroads and commuter operators."

MWRRS Implementation Schedule



Project Coordination

The phased implementation of the MWRRS will result in various states performing different activities during the same year. For example, during the initial phases of the MWRRS implementation, Illinois, Michigan, Minnesota, Missouri, and Wisconsin will perform construction-related activities while Indiana, Iowa, Nebraska, and Ohio will engage in design, environmental studies, and pre-construction activities. To properly support these activities, the management and institutional structures required for the MWRRS must be flexible and evolve over time to respond to the changing needs of the states as their corridor(s) progress from planning to revenue service.

The actual pace of this phasing hinges upon the capability of each state to proceed with project implementation activities. Since federal funding is the predominant funding source for infrastructure improvement costs, the MWRRS management structure will evolve over time in response to the level of funding and the complexity of the system being managed.

MWRRS State Coordination

The MWRRI Steering Committee, comprised of state and Amtrak representatives, has managed the concept and feasibility planning activities over the past several years. This steering committee should continue through the initial years of project implementation. Its role, however, will evolve from planning, coordination and review to one that is more involved in project funding, satisfying grant requirements, and addressing implementation issues. At this juncture in the MWRRI, it is essential that a strong working relationship be forged between the states, federal and local governments, Amtrak, freight and commuter railroads, and railroad labor to ensure that system needs are identified and that the underlying principles of the MWRRS vision are incorporated into the actual service provided.

"MWRRS management requirements will evolve at a pace consistent with system implementation. Ultimately, a joint agreement addressing state responsibilities will be required."

Implementation of the MWRRS will remain the responsibility of the states. Once operational, states might find it advantageous to either broaden the roles and responsibilities of the MWRRI Steering Committee or take action to establish a formal organization charged with operations and system oversight. There are various institutional structures in the Midwest and in other parts of the U.S. that can serve as models for multi-state coordination. These models range from ad hoc multi-state committees, to committees established by multi-state agreement, to a Joint Powers Authority established through legislative authority.